

AL.2.2006-15

University of Alberta Library



0 1620 3682076 7

ent and teacher: Use this cover sheet for mailing or faxing.

### ASSIGNMENT BOOKLET 1B

SCN1270 Science 10

Module 1: Section 2 Assignment

Booklet 1B

#### FOR STUDENT USE ONLY

Date Assignment Submitted:

(If label is missing or incorrect)

Student File Number:

Time Spent on Assignment:

Module Number: \_\_\_\_\_

#### FOR OFFICE USE ONLY

Assigned

Teacher: \_\_\_\_\_

Assignment

Grading: \_\_\_\_\_

Graded by: \_\_\_\_\_

Date Assignment Received:

#### Student's Questions and Comments

Apply Module Label Here

Name

Address

Postal Code

Please verify that preprinted label is for  
correct course and module.

#### Teacher's Comments

Teacher

## INSTRUCTIONS FOR SUBMITTING THIS DISTANCE LEARNING ASSIGNMENT BOOKLET

When you are registered for distance learning courses, you are expected to regularly submit completed assignments for correction. Try to submit each Assignment Booklet as soon as you complete it. Do not submit more than one Assignment Booklet in one subject at the same time. Before submitting your Assignment Booklet, please check the following:

- Are all the assignments completed? If not, explain why.
- Has your work been reread to ensure accuracy in spelling and details?
- Is the booklet cover filled out and the correct module label attached?

### MAILING

1. Do **not** enclose letters with your Assignment Booklets. **Send all letters in a separate envelope.**
2. Put your Assignment Booklet in an envelope and take it to the post office and have it weighed. Attach **sufficient postage** and seal the envelope.

### FAXING

1. Assignment Booklets may be faxed to the school with which you are registered. Contact your teacher for the appropriate fax number.
2. All faxing costs are the responsibility of the sender.

### E-MAILING

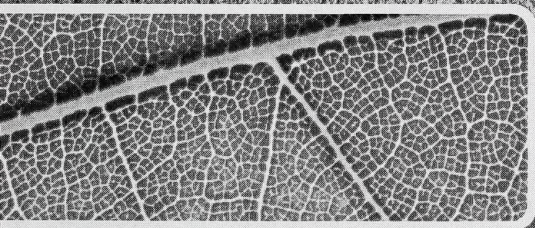
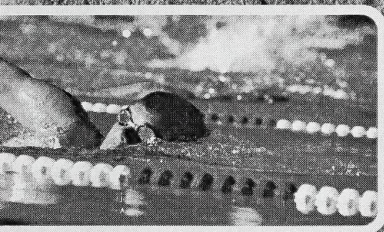
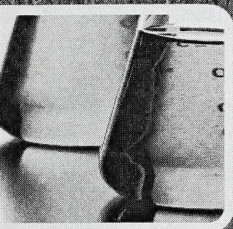
It may be possible to e-mail your completed Assignment Booklet to the school with which you are registered. You also may be **required** to e-mail some of your assignments. Contact your teacher for the appropriate e-mail address.



# SCIENCE 10

## Module 1

### *Energy and Matter in Chemical Change*



## Assignment Booklet 1B



## FOR TEACHER'S USE ONLY

### Summary

|                      | Total Possible Marks | Your Mark |
|----------------------|----------------------|-----------|
| Section 2 Assignment | 66                   |           |

### Teacher's Comments

Science 10  
Module 1: Energy and Matter in Chemical Change  
Assignment Booklet 1B  
Section 2 Assignment  
Learning Technologies Branch  
ISBN 0-7741-2695-7

Cover Art: *all* Photodisc/Getty Images

**The Learning Technologies Branch acknowledges with appreciation the Alberta Distance Learning Centre and Pembina Hills Regional Division No. 7 for their review of this Assignment Booklet.**

This document is intended for

Students ✓

Teachers ✓

Administrators

Home Instructors

General Public

Other



You may find the following Internet sites useful:

- Alberta Education, <http://www.education.gov.ab.ca>
- Learning Technologies Branch, <http://www.education.gov.ab.ca/lrb>
- Learning Resources Centre, <http://www.lrc.education.gov.ab.ca>

Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

Copyright © 2005, Alberta Education. This resource is owned by the Crown in Right of Alberta, as represented by the Minister of Education, Alberta Education, 10155 – 102 Street, Edmonton, Alberta, Canada T5J 4L5. All rights reserved.

This courseware was developed by or for Alberta Education. Third-party content has been identified by a © symbol and/or a credit to the source and must be used as is. This courseware may be reproduced in any form, including photocopying, without the written permission of Alberta Education. Changes can be made only to content owned by Alberta Education. For more detailed information, refer to the Terms of Use Agreement. Every effort has been made to acknowledge the original source and to comply with Canadian copyright law. If cases are identified where this effort has been unsuccessful, please notify Alberta Education so corrective action can be taken.

**THIS COURSEWARE IS NOT SUBJECT TO THE TERMS OF A LICENCE FROM A COLLECTIVE OR LICENSING BODY, SUCH AS ACCESS COPYRIGHT.**

**ASSIGNMENT BOOKLET 1B**  
**SCIENCE 10: MODULE 1**  
**SECTION 2 ASSIGNMENT**

This Assignment Booklet is worth 66 marks out of the total 140 marks for the assignments in Module 1. The value of each assignment and each question is stated in the left margin.

Read all parts of your assignment carefully and record your answers in the appropriate places. If you have difficulty with an assignment, go back to your Student Module Booklet and review the appropriate lesson. Be sure to proofread your answers carefully before submitting your Assignment Booklet.

66

**Section 2 Assignment: Elements and Compounds**

For questions 1 to 7, read each question carefully. Decide which of the choices BEST completes the statement or answers the question. Place your answer in the blank space given.

1

\_\_\_\_\_ 1. Which is not a property of a metal?

- A. can be beaten or rolled into sheets without crumbling
- B. can be stretched into long thin wire
- C. a good conductor of electricity and heat
- D. a gas at normal temperature and pressure

1

\_\_\_\_\_ 2. Fluorine, chlorine, and iodine are examples of

- A. metals
- B. non-metals
- C. metalloids
- D. compounds

1

\_\_\_\_\_ 3. Lithium, sodium, and potassium are part of a group of elements called

- A. alkali metals
- B. noble gases
- C. halogens
- D. alkaline-earth metals

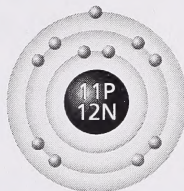
1

\_\_\_\_\_ 4. Which subatomic particle takes up most of the space of an atom?

- A. proton
- B. electron
- C. neutron
- D. nucleus



Use the following diagram to answer questions 5 to 7.



- ① \_\_\_\_\_ 5. What is the atomic number of the element?
- A. 11  
B. 12  
C. 22  
D. 23
- ① \_\_\_\_\_ 6. What is the mass number of the element?
- A. 11  
B. 12  
C. 22  
D. 23
- ① \_\_\_\_\_ 7. Which element is it?
- A. oxygen  
B. sodium  
C. vanadium  
D. magnesium
8. Decide whether each statement is true (T) or false (F). Place your answer in the blank space given.
- ① \_\_\_\_\_ a. An electron cannot fall into the nucleus under normal circumstances.
- ① \_\_\_\_\_ b. An electron in the outer energy level is called a valence electron.
- ① \_\_\_\_\_ c. Elements in the same period have the same number of valence electrons.
- ① \_\_\_\_\_ d. Positively charged ions are called anions.
- ① \_\_\_\_\_ e. An isotope of an element has a different number of neutrons in its nucleus.

- 4
9. Complete the following table with information regarding the three subatomic particles that make up an atom of an element.

| Particle | Symbol         | Charge | Mass                      | Location |
|----------|----------------|--------|---------------------------|----------|
| proton   |                | 1+     |                           | nucleus  |
|          | n <sup>0</sup> |        | 1.7 × 10 <sup>-24</sup> g |          |
| electron | e <sup>-</sup> |        |                           |          |

- 3
10. Complete the following table. Use the periodic table on page 30 of the textbook as needed.

| Element Name | Mass Number | Number of Protons | Number of Neutrons |
|--------------|-------------|-------------------|--------------------|
| beryllium    | 9           |                   |                    |
|              | 15          | 7                 |                    |
|              |             | 25                | 30                 |

- 8
11. Complete the following table. Use the periodic table on page 30 of the textbook as needed.

| Atom or Ion Name | Symbol          | Number of Protons | Number of Electrons | Charge | Number of Electrons Lost or Gained |
|------------------|-----------------|-------------------|---------------------|--------|------------------------------------|
|                  |                 | 12                | 10                  |        |                                    |
|                  | Li <sup>+</sup> |                   |                     |        | lost 1                             |
|                  |                 | 16                |                     | 2-     |                                    |
| zinc             |                 |                   | 28                  |        |                                    |

Return to page 60 of the Student Module Booklet and begin Section 2: Lesson 2.



For questions 12 to 19, read each question carefully. Decide which of the choices BEST completes the statement or answers the question. Place your answer in the blank space given.

- ① \_\_\_\_\_ 12. Which type of bond is formed when one atom transfers an electron to another atom?
- A. ionic bond
  - B. covalent bond
  - C. polyatomic bond
  - D. multivalent bond
- ① \_\_\_\_\_ 13. A charged particle made up of several non-metallic atoms joined together is a(n)
- A. covalent ion
  - B. polyatomic ion
  - C. multivalent ion
  - D. electron ion
- ① \_\_\_\_\_ 14. The formula for ammonium sulfate is
- A.  $\text{NH}_4(\text{SO}_4)_2(\text{s})$
  - B.  $\text{NH}\text{SO}_4(\text{s})$
  - C.  $(\text{NH})_2\text{SO}_2(\text{s})$
  - D.  $(\text{NH}_4)_2\text{SO}_4(\text{s})$
- ① \_\_\_\_\_ 15. What is the name of the compound  $\text{FeI}_3(\text{s})$ ?
- A. iron iodide
  - B. iron(II) iodide
  - C. iron(III) iodide
  - D. iron iodide(III)
- ① \_\_\_\_\_ 16. The symbol of the lead(IV) ion is
- A.  $\text{Pb}_4$
  - B.  $\text{Pb}^{2+}$
  - C.  $\text{Pb}^{4-}$
  - D.  $\text{Pb}^{4+}$
- ① \_\_\_\_\_ 17. The name of the ion with the formula  $\text{HCO}_3^-$  is
- A. carbonate ion
  - B. hydrogen bicarbonate ion
  - C. hydrogencarbonate ion
  - D. hydrocarbon oxide



- ① \_\_\_\_\_ 18. The name of the molecular compound  $\text{SCl}_2(\text{l})$  is
- A. silver(II) chloride
  - B. sulfur dichloride
  - C. selenium chloride
  - D. silver dichloride

- ① \_\_\_\_\_ 19. The compound  $\text{Fe}(\text{NO}_3)_3(\text{s})$  is classified as a(n)
- A. polyatomic compound
  - B. molecular compound
  - C. ionic compound
  - D. multi-atomic compound

**Return to page 76 of the Student Module Booklet and begin Section 2: Lesson 3.**

For questions 20 to 25, read each question carefully. Decide which of the choices BEST completes the statement or answers the question. Place your answer in the blank space given.

- ① \_\_\_\_\_ 20. Which compound dissolves in water but does not conduct electricity?
- A. table sugar
  - B. sodium chloride
  - C. sodium hydroxide
  - D. hydrochloric acid

- ① \_\_\_\_\_ 21. Which is an example of an ionic compound?
- A.  $\text{H}_2\text{O}$
  - B.  $\text{CH}_4$
  - C.  $\text{H}_2\text{S}$
  - D.  $(\text{NH}_4)_2\text{S}$

- ① \_\_\_\_\_ 22. Which is a property of an ionic compound?
- A. It is malleable.
  - B. It is not soluble in water.
  - C. It is a good conductor when it is in a solution.
  - D. Its melting or freezing point is below  $250^\circ\text{C}$  for most ionic compounds.

- ① \_\_\_\_\_ 23. A substance that dissolves well in water is indicated by its chemical formula followed by
- A. (s)
  - B. (aq)
  - C. (l)
  - D. (g)

- ① \_\_\_\_\_ 24. A solid with low solubility that sometimes forms when ionic solutions are mixed is a
- A. solute
  - B. solvent
  - C. precipitate
  - D. molecular compound

- ① \_\_\_\_\_ 25. Which is a property of a molecular compound?
- A. It is malleable.
  - B. It is soluble in water.
  - C. It is a good conductor when it is in a solution.
  - D. Its melting or freezing point is below  $250^{\circ}\text{C}$ .

26. Determine the solubility of the following ionic compounds when added to water by inserting (*aq*) or (*s*) in the formula. Explain how you arrived at your answer.

- ② a.  $\text{Sr}(\text{OH})_2$

---

---

- ② b.  $\text{Au}(\text{NO}_3)_3$

---

---

- ② c.  $\text{CuCl}$

---

---

- ② 27. Explain what is meant by the statement, "Water is a polar molecule."

---

---

---



For questions 28 to 32, read each question carefully. Decide which of the choices BEST completes the statement or answers the question. Place your answer in the blank space given.

\_\_\_\_\_ 28. In a solution, red litmus remains red and blue litmus turns red. Therefore, the solution is

- A. acidic
- B. basic
- C. neutral
- D. both acidic and basic

\_\_\_\_\_ 29. A solution with a pH of 10 that turns red litmus blue is

- A. acidic
- B. basic
- C. neutral
- D. both acidic and basic

\_\_\_\_\_ 30. The formula  $\text{MgCl}_2(\text{aq})$  is a substance that is

- A. acidic
- B. basic
- C. neutral
- D. both acidic and basic

\_\_\_\_\_ 31. Another name for aqueous hydrogen phosphate is

- A. phosphorus
- B. ethanoic acid
- C. phosphoric acid
- D. phosphate fertilizer

\_\_\_\_\_ 32. When acids and bases react together to a point of neutralization, how are the acidic and basic properties affected?

- A. The properties remain the same.
- B. The acidic properties are enhanced.
- C. The basic properties are enhanced.
- D. The acidic and basic properties disappear.

\_\_\_\_\_ 33. How do you know that  $\text{Al}(\text{OH})_3(\text{s})$  is a base?

---

---

Read question 34 carefully. Decide which of the choices BEST completes the statement. Place your answer in the blank space given.

- ① \_\_\_\_\_ 34. Destruction of liver cells leading to cirrhosis of the liver is the result of
- A. overeating
  - B. cancer treatment
  - C. excessive smoking
  - D. excessive alcohol consumption

35. Determine whether each statement is true (T) or false (F). Place your answer in the blank space given.

- ① \_\_\_\_\_ a. Chlorofluorocarbons (CFCs) are highly toxic.
- ① \_\_\_\_\_ b. Chlorofluorocarbon (CFC) emissions are still increasing.
- ① \_\_\_\_\_ c. Nicotine only causes physical addiction.
- ① \_\_\_\_\_ d. Emphysema may be the result of cigarette smoking.
- ① \_\_\_\_\_ e. Some knowledge of chemistry is of no value to a house painter.
- ① \_\_\_\_\_ f. Hairstylists, nurses, dentists, artists, and chemical engineers all have jobs related to chemistry.

- ③ 36. Explain how mercury batteries are a hazard to the environment.

---

---

---

---

---

Submit your completed Assignment Booklet 1B to your teacher for assessment.  
Then return to page 112 of the Student Module Booklet and begin Section 3.